Portable Radio AE3650/00

Service
Service
Service

Service Manual

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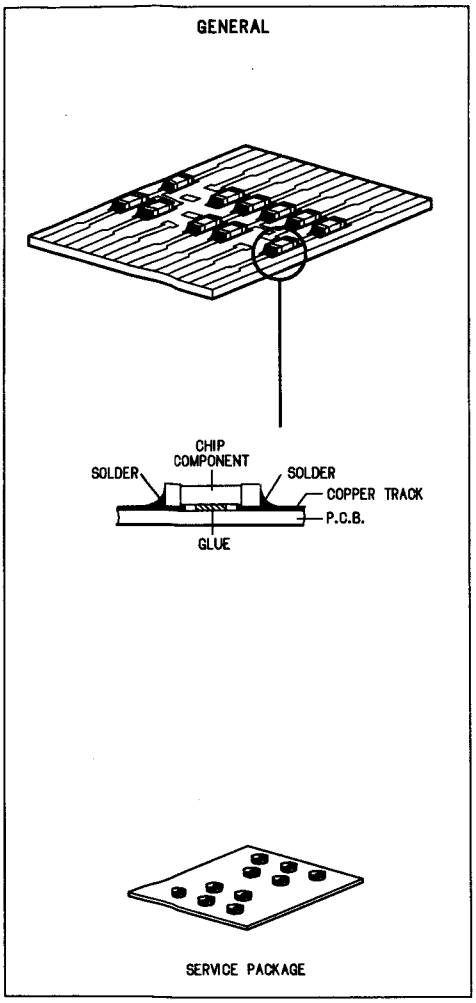
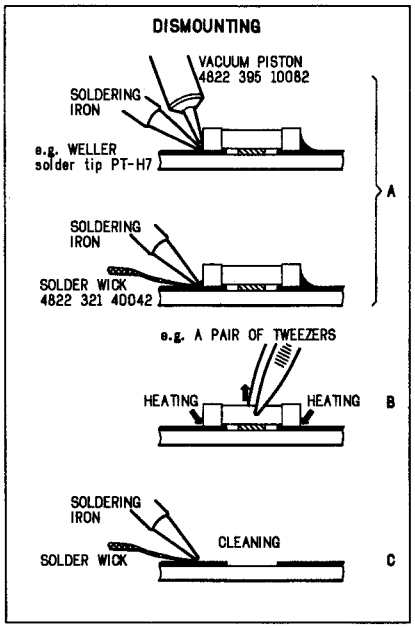
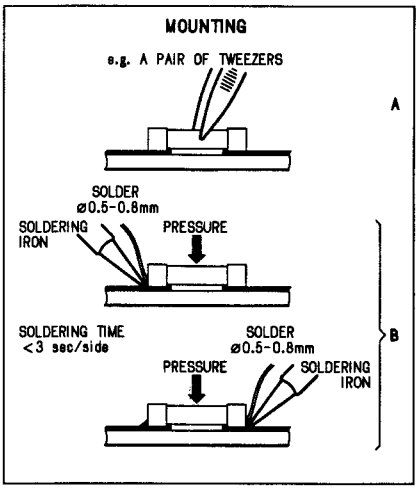
PHILIPS

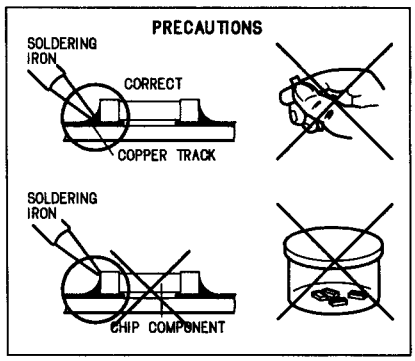
PCS 84 822

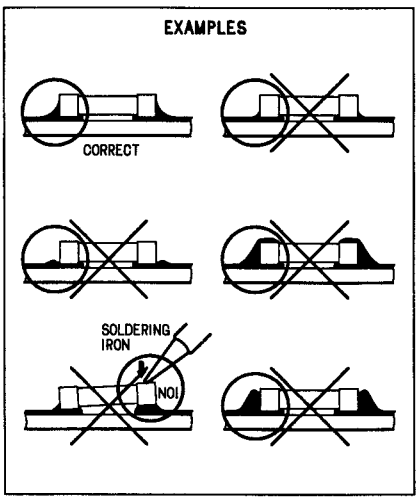
HANDLING CHIP COMPONENTS











(GB) WARNING

All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools at this potential.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu'aucune précaution nést prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfileer le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

(D) WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen vermindern. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(I) AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione. Durante le riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile zu verwenden.

(I)
Le norme di sicurezza estigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

(F)
Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

(S) Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !

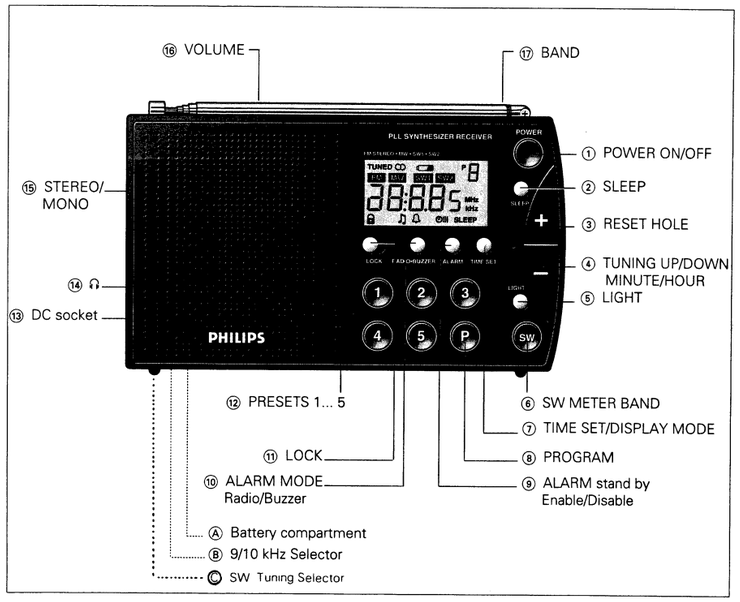
Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

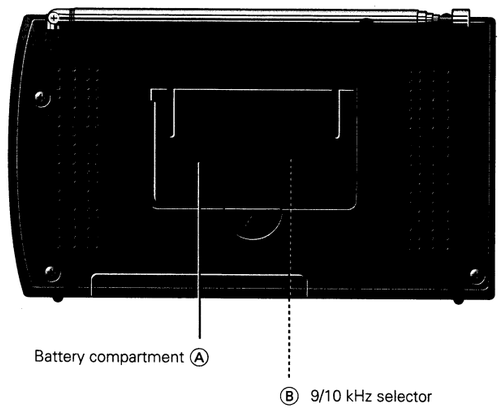
(SF) Varoitus !

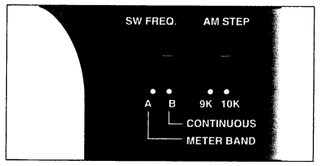
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

(F)
"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

CONNECTIONS AND CONTROLS







CONTROLS

1 **POWER** - for switching the radio on and off
2 **SLEEP** - for switching on the sleep function and setting the sleep time
3 **RESET** - for erasing the memory
4 **TUNING UP/DOWN** buttons
- for tuning to a radio station
- for setting minutes/hours
5 **LIGHT** - for illuminating the display
6 **SW** - for selecting the short-wave band
7 **TIME** - for setting the display mode and setting the time
8 **PROGRAM (P)** - for programming stations into the memory
9 **ALARM** - for switching the alarm on and off
10 **ALARM** MODE - for setting the alarm to radio or buzz
11 **LOCK** switch - for blocking all key functions
12 **PRESET STORE 1...5** buttons - for selecting and storing preferred stations
13 **DC 4,5 V** - connection socket for a mains adapter
14 **PHONES** output socket - for connecting headphones
15 **STEREO/MONO** - for stereo/mono selection
16 **VOLUME** - for adjusting the volume
17 **BAND** switch - band selector switch

A **Battery compartment**
B **9/10 KHz selector**
C **SW tuning mode selector**

SPECIFICATIONS

GENERAL

Battery	:	DC 4.5V (R06 x 3)
Current Consumption	:	50mA
	:	< 0.1mA (radio off)
Battery lifetime	:	> 8 hours
	:	> 180 days (clock back up)
Output power (10% THD)	:	> 180mW
Speaker impedance	:	4 Ohm
Headphone impedance	:	2 x 32 Ohm
Clock accuracy	:	< 2 sec/day

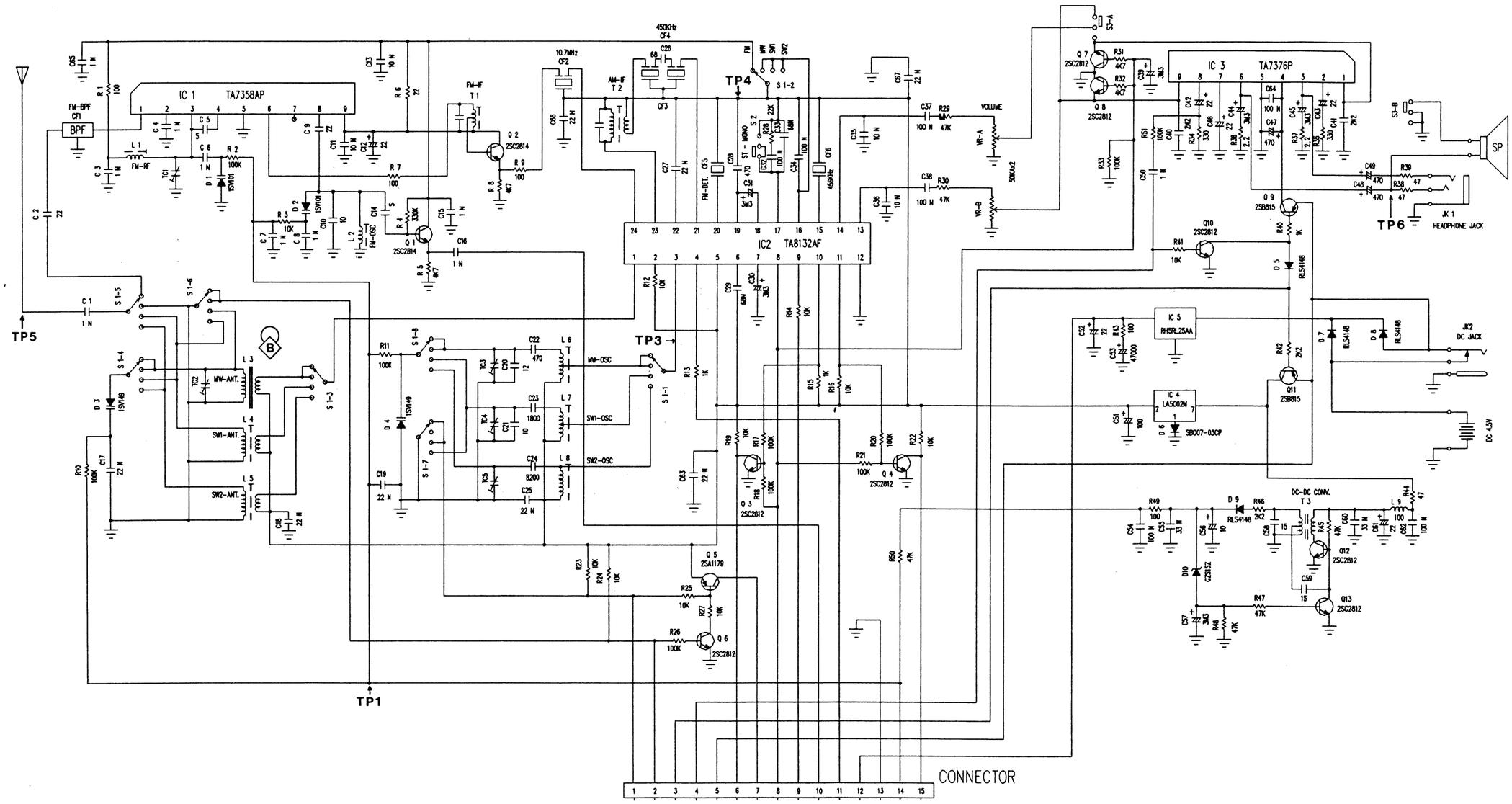
TUNER - FM section

Tuning range	:	87.5 -108MHz
IF frequency	:	10.7MHz
Sensitivity	:	< 6µV at 26dB S/N
IF rejection	:	> 50dB
Image rejection	:	> 20dB
MPX seperation 1KHz	:	> 23dB
S/N ratio	:	> 40dB
Auto search stop sens.	:	< 25µV

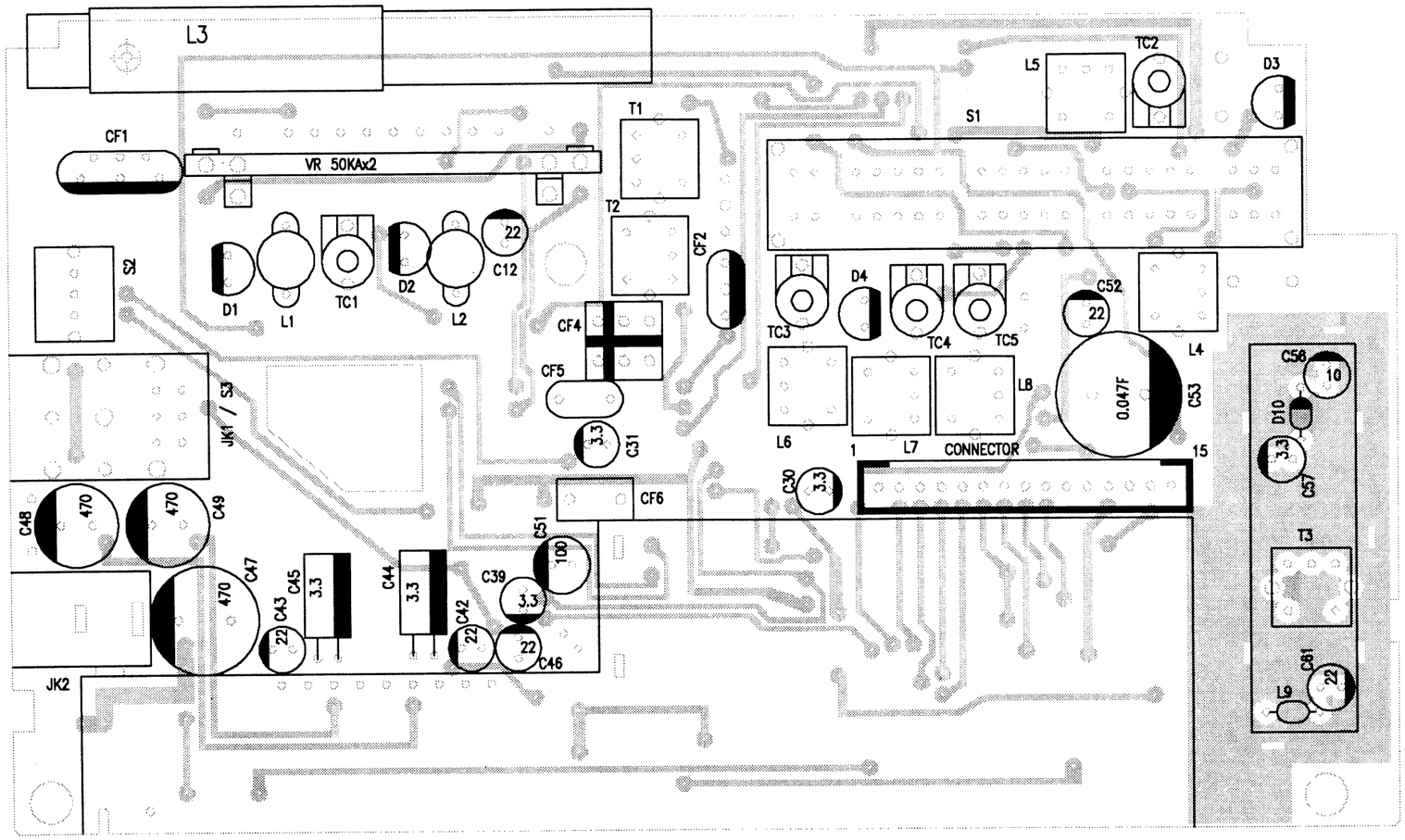
TUNER - AM section

	MW/AM :	522 - 1620 (at 9KHz step)
		520 - 1710 (at 10KHz step)
	SW1 :	2.3 - 7.4MHz
	SW2 :	9.4 - 26.1MHz
IF frequency	:	468 ± 3KHz
Sensitivity	MW :	< 2500µV/m at 26dB
	SW1 :	160 - 250µV
	SW2 :	160 - 250µV
Selectivity	MW :	> 20dB
	SW1 :	> 8dB
	SW2 :	> 8dB
IF rejection	MW :	> 24dB
Image rejection	MW :	> 30dB
	SW1 :	> 8 - 17dB
	SW2 :	> 8dB

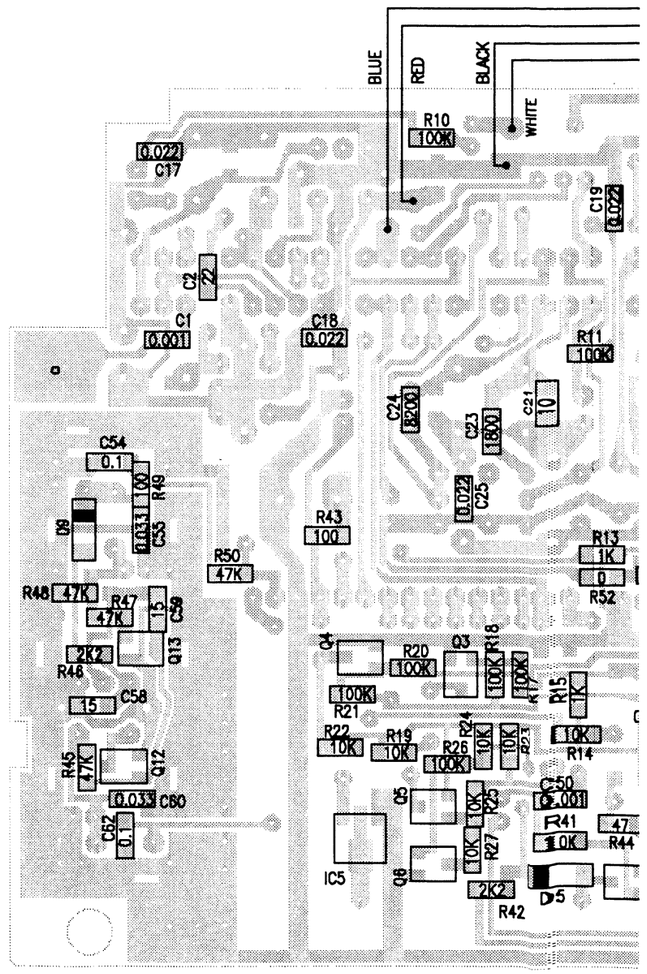
MAIN BOARD - CIRCUIT DIAGRAM



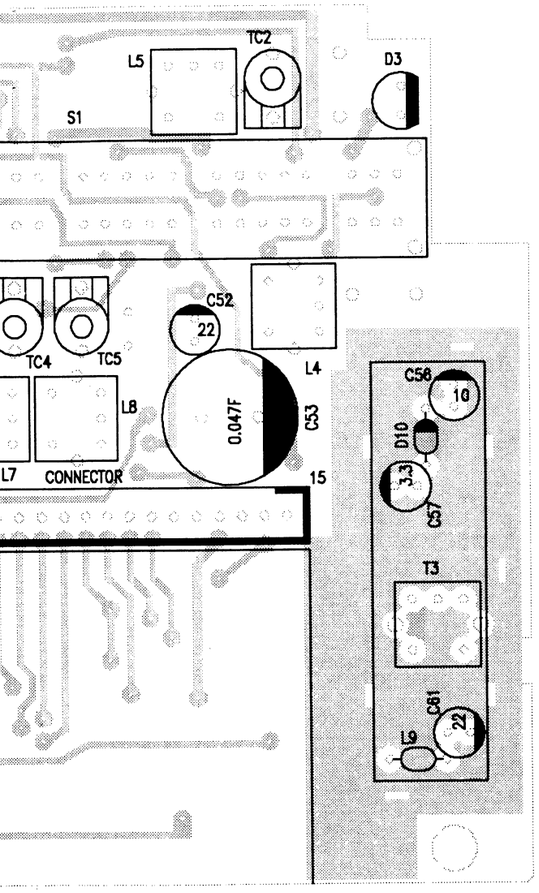
MAIN BOARD - LAYOUT DIAGRAM (TOP)

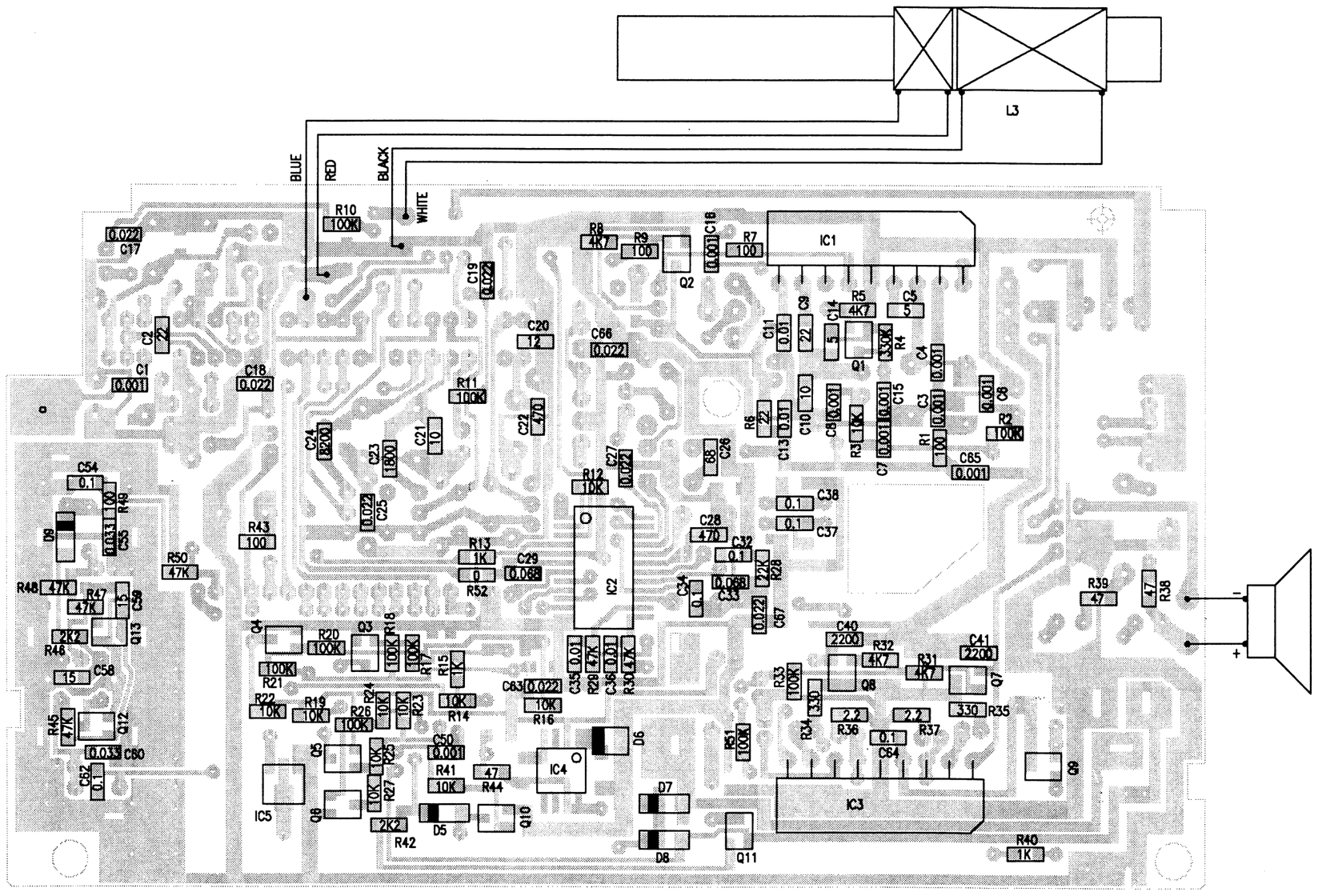


MAIN BOARD - LAYOUT DIAGRAM (BOTTOM)



MAIN BOARD - LAYOUT DIAGRAM (BOTTOM)





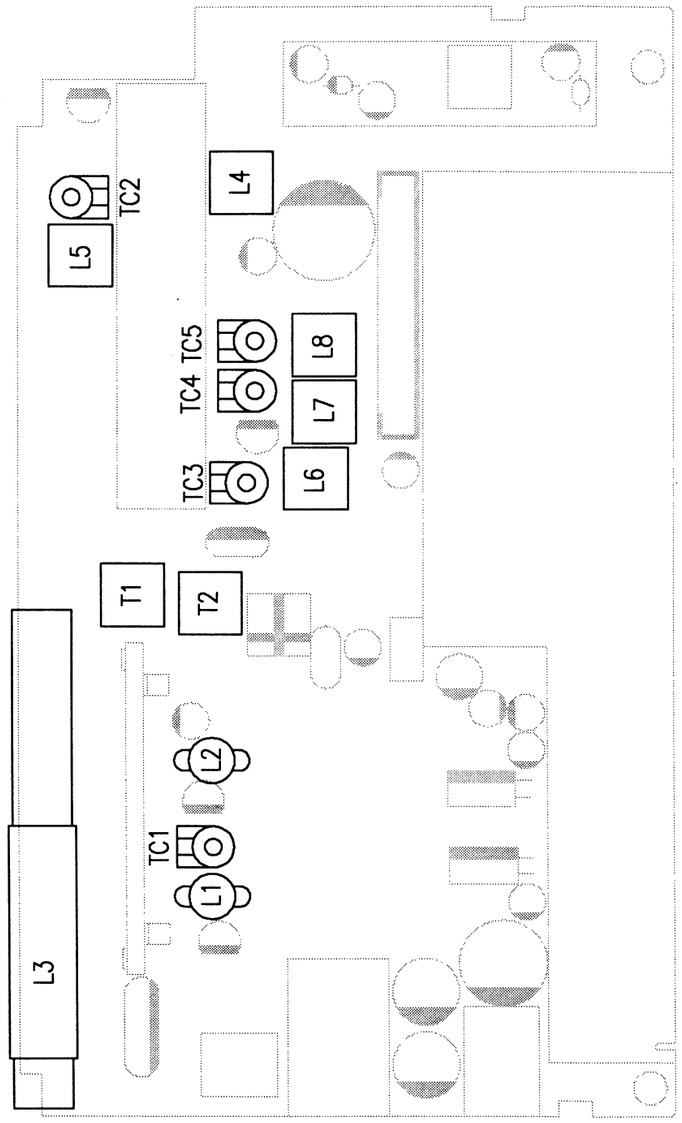
RADIO ALIGNMENT

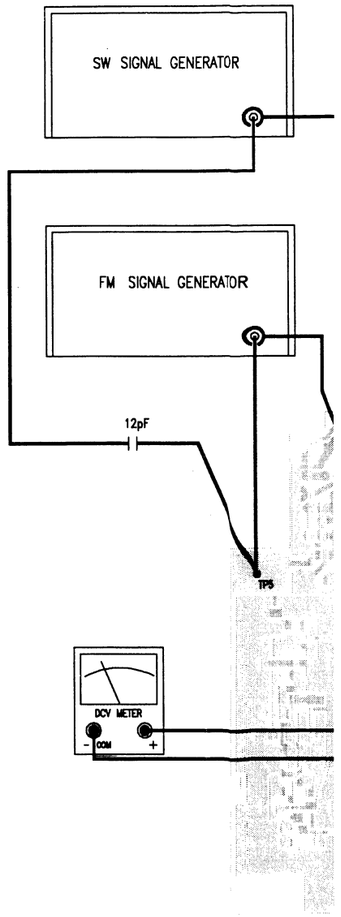
AM IF						
AM or MW	450KHz	TP3	min.	T2	TP4	max.
AM RF						
MW *	520KHz		max.	L6	TP2	1.2V+/-0.2V
	1620KHz		min.	TC3		7.5V+/-0.3V
	558KHz	B		L3	TP6	max.
	1440KHz			TC2		
SW1 *	2.3MHz		max.	5109	TP1	1.05V+/-0.1V
	7.4MHz		min.	2126		9.9V+/-0.2V
	2.4MHz	TP5		L4	TP6	max.
	7.1MHz					
SW2 *	9.4MHz		max.	L8	TP1	2.0V+/-0.1V
	26.1MHz		min.	TC5		9.9V+/-0.2V
	9.5MHz	TP5		L5	TP6	max.
	25.6MHz					
FM IF						
FM #	10.7MHz	TP2		TP4		symm. max. lin.
FM RF						
FM #	87.5MHz		max.	L2	TP1	2.0+/-0.3V
	108MHz		min.			6.8+/-0.6V
	88MHz	TP5		L1	TP6	max.
	106MHz			TC1		
STEREO DECODER						
FM #	98MHz		98MHz			

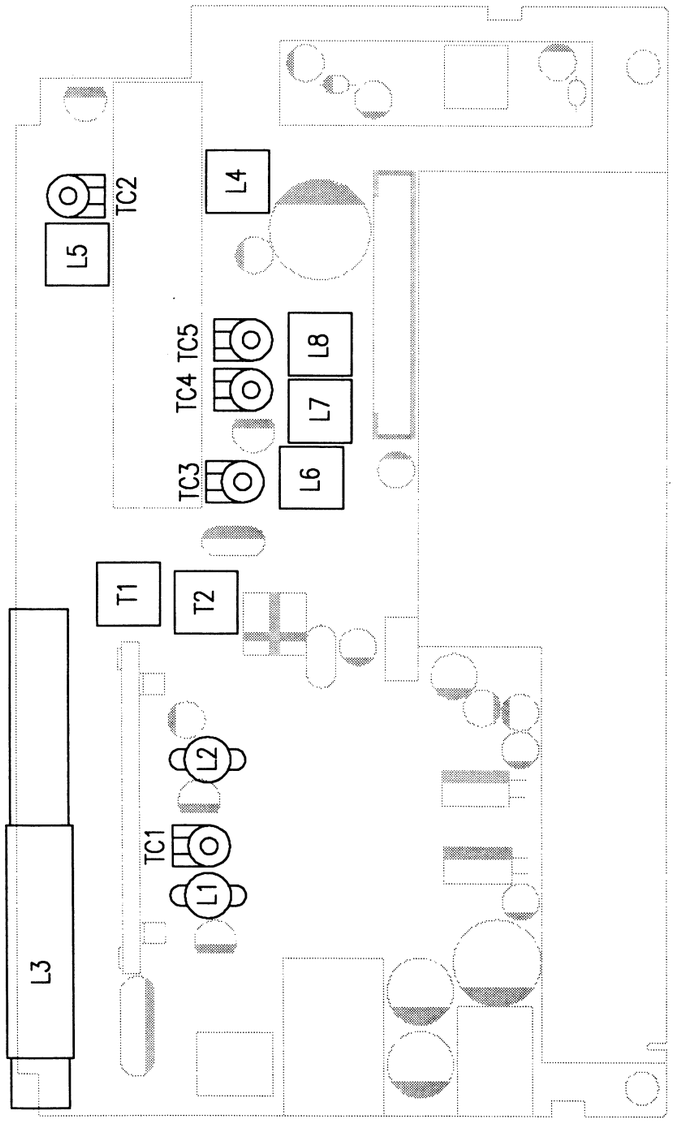
Repeat

* Mod. 1KHz 30%

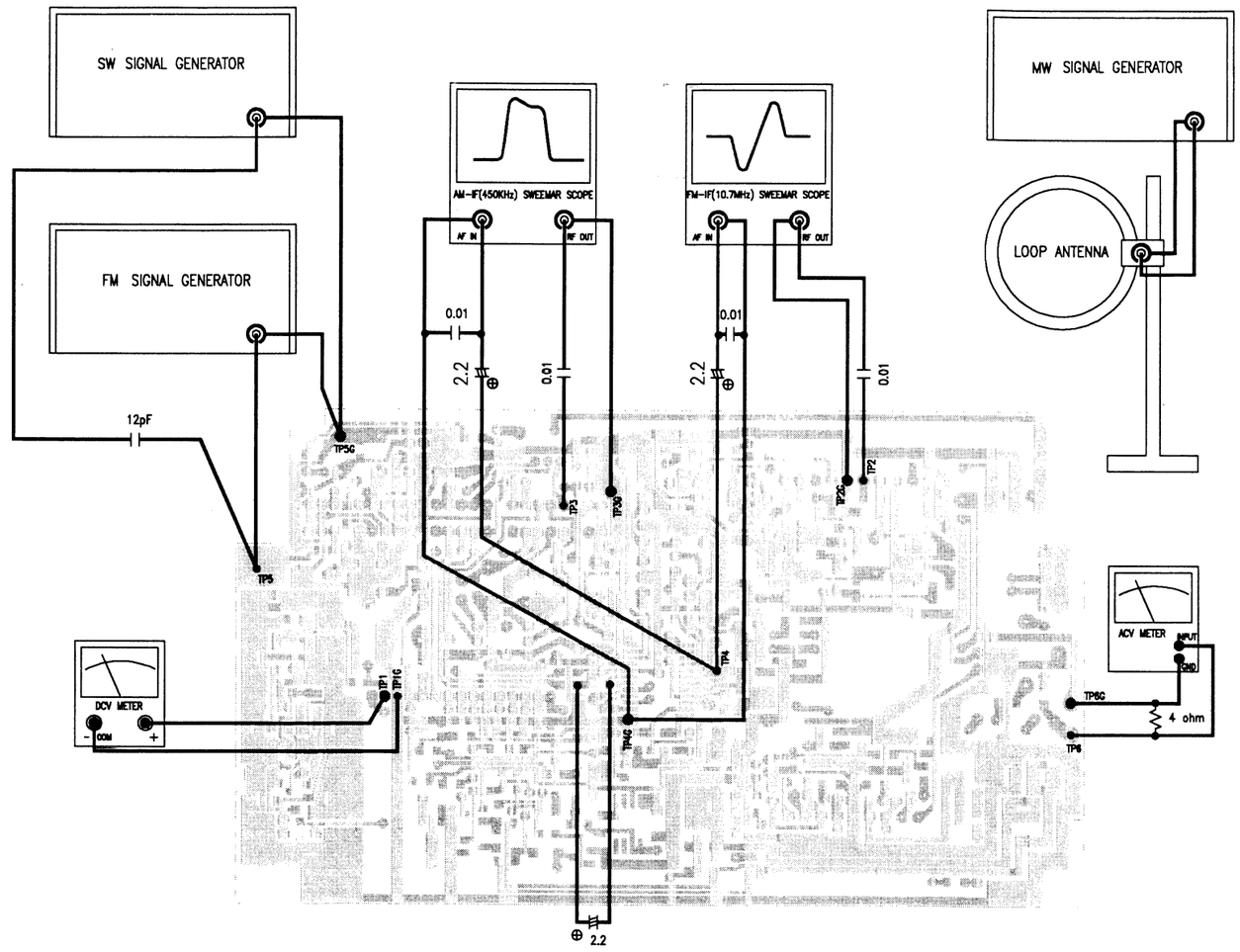
\# 10nF + 15E





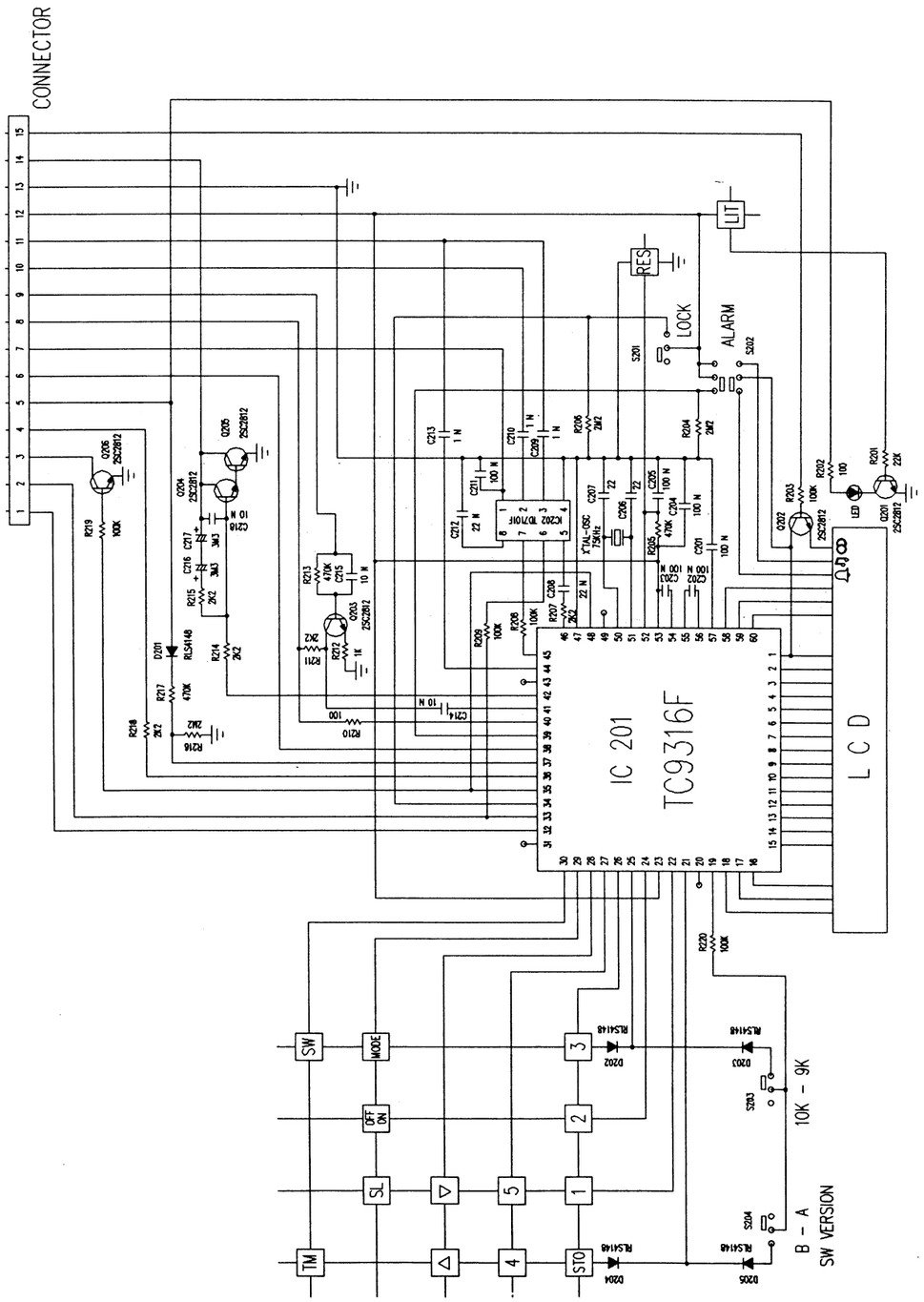

L4
TC2
L5
TC4 TC5
L8
L7
TC3
L6
T1
T2
L2
TC1
L1
L3

5a

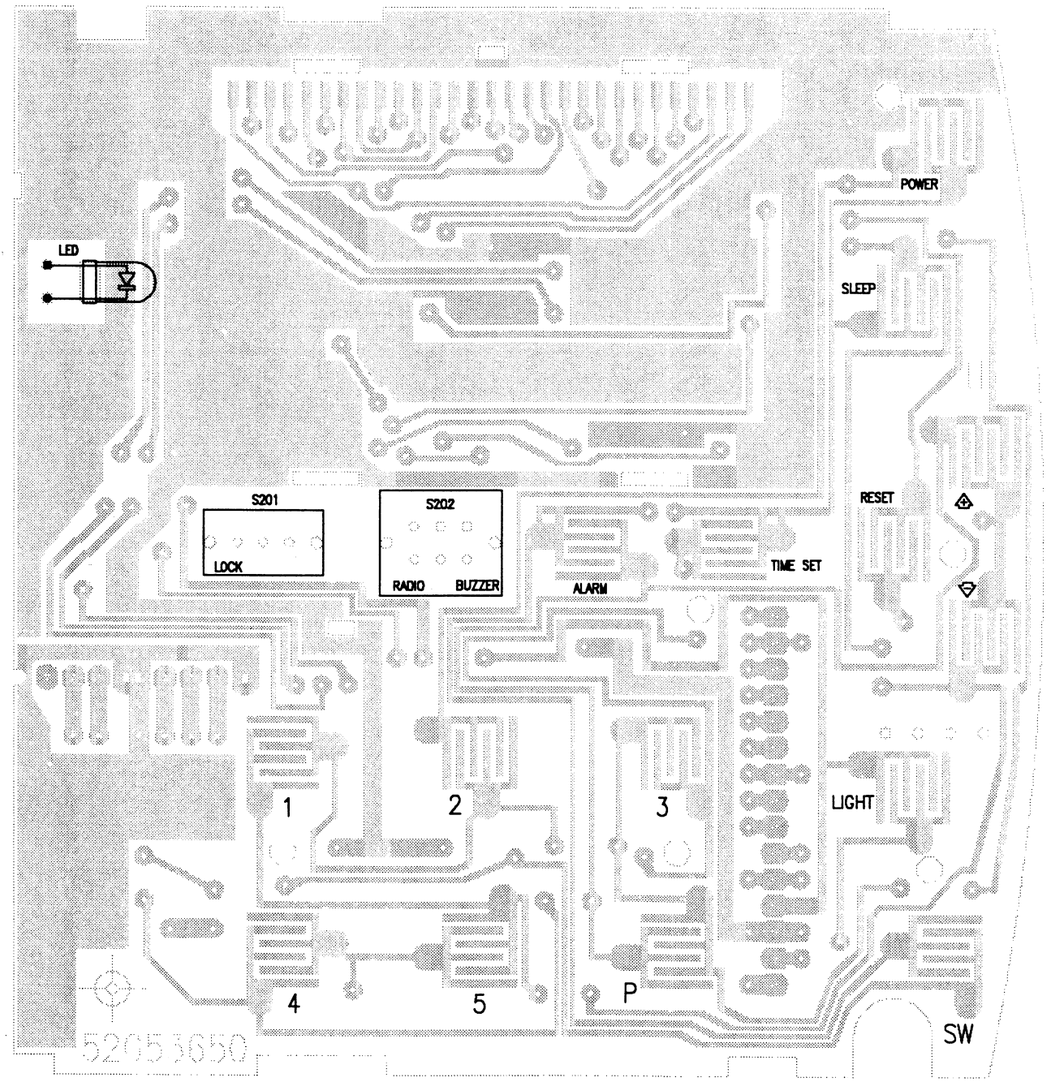

SW SIGNAL GENERATOR
FM SIGNAL GENERATOR
MW SIGNAL GENERATOR
LOOP ANTENNA
AM-IF(450KHz) SWEEMAR SCOPE
FM-IF(10.7MHz) SWEEMAR SCOPE
AF IN
RF OUT
0.01
2.2
12pF
TP3C
TP5
TP3
TP3C
TP2C
TP2
TP4
TP4C
TP1
TP1C
DCV METER
COM
ACV METER
INPUT
GND
TP5C
4 ohm
TP6

5b

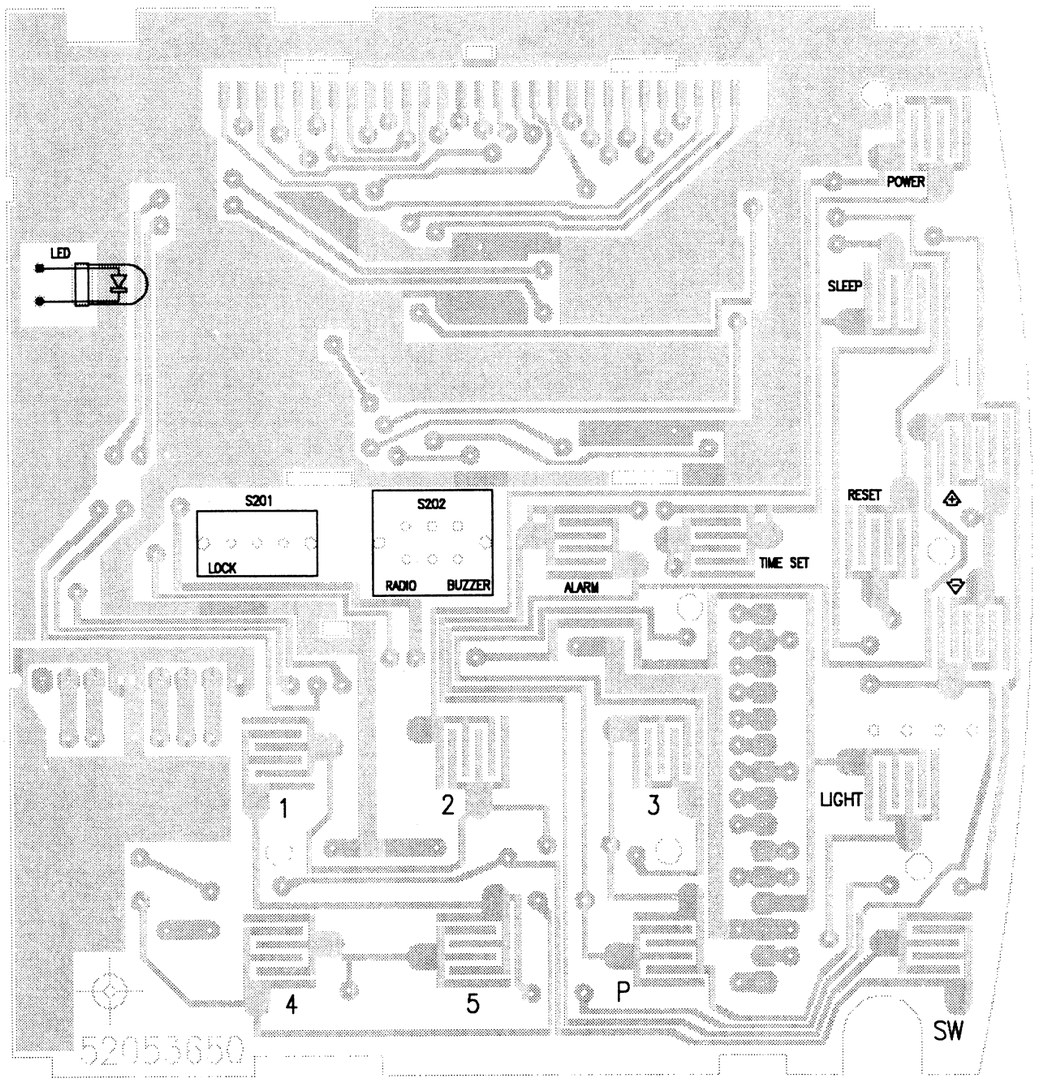
CONTROL BOARD - CIRCUIT DIAGRAM



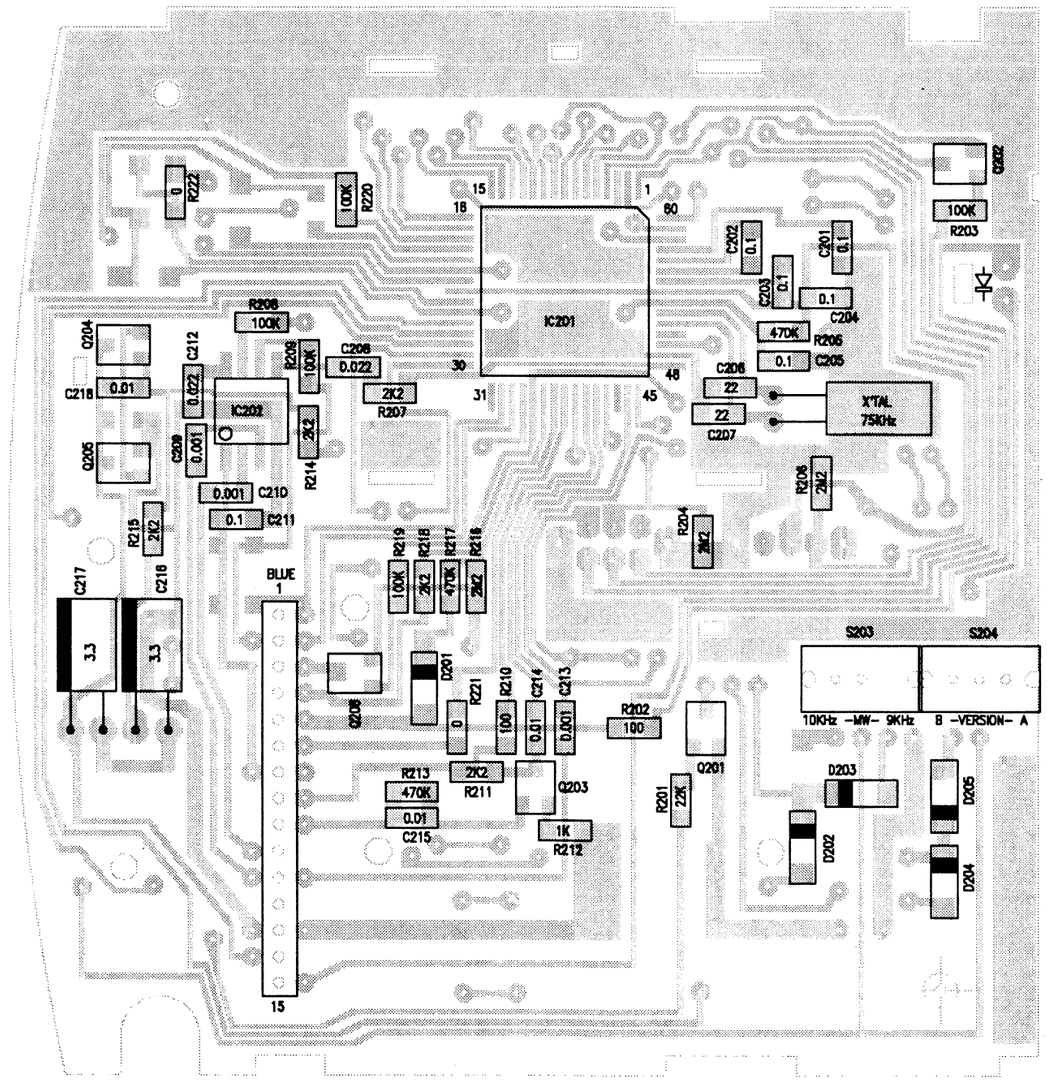
CONTROL BOARD - LAYOUT DIAGRAM (TOP)



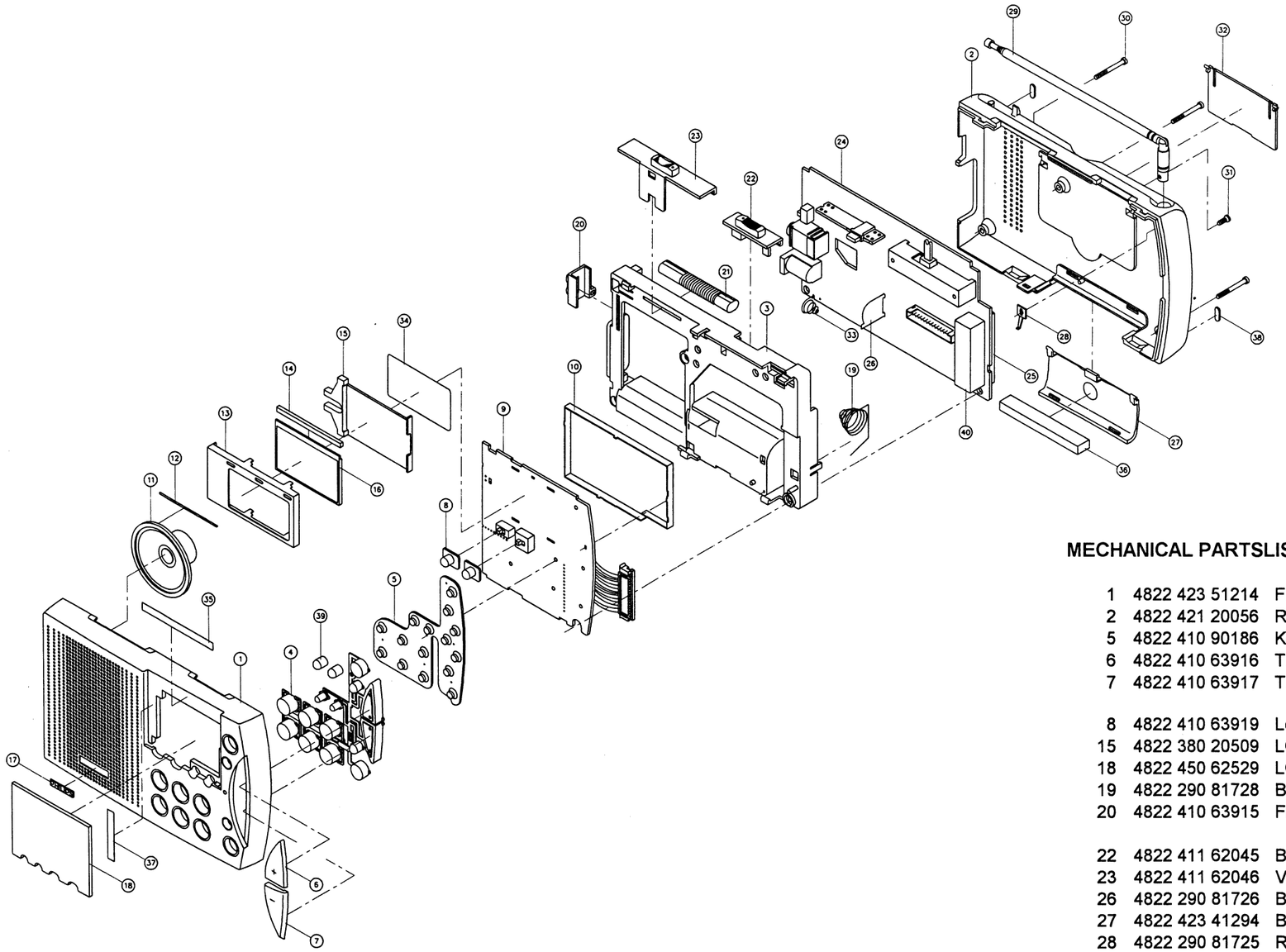
CONTROL BOARD - LAYOUT DIAGRAM (TOP)



CONTROL BOARD - LAYOUT DIAGRAM (BOTTOM)



EXPLODED VIEW DIAGRAM



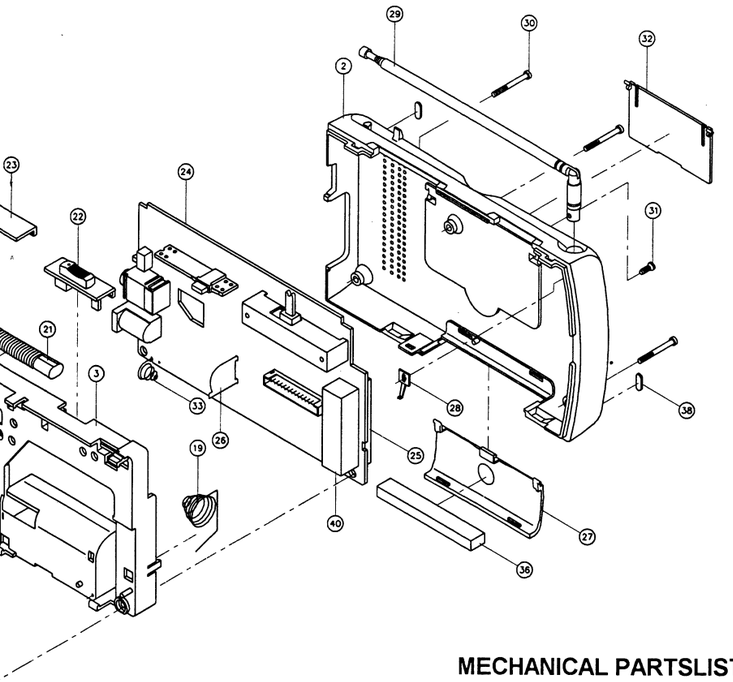
MECHANICAL PARTSLIST

1	4822 423 51214	Front Panel
2	4822 421 20056	Rear Cover
5	4822 410 90186	Key Board Rubber
6	4822 410 63916	Tuning Button "+"
7	4822 410 63917	Tuning Buttom "-"
8	4822 410 63919	Lock Knob
15	4822 380 20509	LCD Reflector
18	4822 450 62529	LCD Window
19	4822 290 81728	Battery Spring "+-"
20	4822 410 63915	FM Mode Knob
22	4822 411 62045	Band Knob
23	4822 411 62046	Volume Knob
26	4822 290 81726	Battery Contact "+"
27	4822 423 41294	Battery Cover
28	4822 290 81725	Rod Ant. Contact
29	4822 303 30495	Rod Antenna
33	4822 290 81727	Battery Spring "-"
38	4822 466 62666	Rubber Pad
39	4822 410 63918	Alarm Buttom
	4822 736 22541	Operation Instruct.

Note : Only those parts mentioned in the list are normal service parts.

ELECTRICAL P

VR	4822 105
Q1	4822 130
Q2	4822 130
Q3	4822 130
Q4	4822 130
Q5	4822 130
Q6	4822 130
Q7	4822 130
Q8	4822 130
Q9	4822 130
Q10	4822 130
Q11	4822 130
Q201	4822 130
Q202	4822 130
Q203	4822 130
Q204	4822 130
Q205	4822 130
Q206	4822 130
IC1	4822 209
IC2	4822 209
IC3	4822 209
IC4	4822 209
IC5	4822 209
IC201	4822 209
IC202	4822 209
D1	4822 130
D2	4822 130
D3	4822 130
D4	4822 130
D5	4822 130
D6	4822 130
D7	4822 130
D8	4822 130
D10	4822 130
D201	4822 130



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	4822 736 22541	Operation Instruct.

Note : Only those parts mentioned in the list are normal service parts.

ELECTRICAL PARTSLIST

VR	4822 105 11156	Slide VR 50KA x 2
Q1	4822 130 63865	Trans 2SC2814F4-TB
Q2	4822 130 63865	Trans 2SC2814F4-TB
Q3	4822 130 60753	Trans 2SC2812L6-TB
Q4	4822 130 60753	Trans 2SC2812L6-TB
Q5	4822 130 63863	Trans 2SA1179M6-TB
Q6	4822 130 60753	Trans 2SC2812L6-TB
Q7	4822 130 60753	Trans 2SC2812L6-TB
Q8	4822 130 60753	Trans 2SC2812L6-TB
Q9	4822 130 63864	Trans 2SB815B7-TB
Q10	4822 130 60753	Trans 2SC2812L6-TB
Q11	4822 130 63864	Trans 2SB815B7-TB
Q201	4822 130 60753	Trans 2SC2812L6-TB
Q202	4822 130 60753	Trans 2SC2812L6-TB
Q203	4822 130 60753	Trans 2SC2812L6-TB
Q204	4822 130 60753	Trans 2SC2812L6-TB
Q205	4822 130 60753	Trans 2SC2812L6-TB
Q206	4822 130 60753	Trans 2SC2812L6-TB
IC1	4822 209 71874	IC TA7358P
IC2	4822 209 30853	IC TA8132AF
IC3	4822 209 90636	IC TA7376P
IC4	4822 209 90637	IC LA5002M-TP-T1
IC5	4822 209 90638	IC RH5RL25AA-T1
IC201	4822 209 31694	IC TC9316F-074
IC202	4822 209 30605	IC TD7101F

D1	4822 130 81566	Diode VC 1SV101
D2	4822 130 81566	Diode VC 1SV101
D3	4822 130 81673	Diode VC 1SV149
D4	4822 130 81673	Diode VC 1SV149
D5	4822 130 83991	Diode RLS-4148-TE12
D6	4822 130 83992	Diode SB007-03CP-TB
D7	4822 130 83991	Diode RLS-4148-TE12
D8	4822 130 83991	Diode RLS-4148-TE12
D10	4822 130 83989	Zener Diode GZS15Z
D201	4822 130 83991	Diode RLS-4148-TE12

D202	4822 130 83991	Diode RLS-4148-TE12
D203	4822 130 83991	Diode RLS-4148-TE12
D204	4822 130 83991	Diode RLS-4148-TE12
D205	4822 130 83991	Diode RLS-4148-TE12
X'tal	4822 242 82161	Crystal 75KHz
LED	4822 130 83993	LED Grn LLP-204YGU-2

CF2	4822 242 82165	Filter SFE10.7MS2-A
CF4	4822 242 82164	Filter SFZ450C3N
CF5	4822 242 82166	Discriminator
CF6	4822 242 80223	Resonator CSB456F18
L3	4822 158 60661	Bar Antenna
L4	4822 157 71761	Coil SW1 Ant
L5	4822 157 71762	Coil SW2 Ant
L6	4822 157 71764	Coil MW Osc
L7	4822 157 71763	Coil SW1 Osc
L8	4822 157 71765	Coil SW2 Osc
T1	4822 157 71759	Coil FM IFT 10.7MHz
T2	4822 157 71758	Coil AM IFT 450KHz

- MISCELLANEOUS -

S1	4822 277 21809	Slide Switch 8P4T
S2	4822 277 21811	Slide Switch 1P2T
S201	4822 277 21808	SLIDE SWITCH 2P2T
S202	4822 277 21808	Slide Switch 2P2T
S203	4822 277 21811	Slide Switch 1P2T
S204	4822 277 21811	Slide Switch 1P2T
JK1	4822 267 31967	Headphone Jack
JK2	4822 267 31966	DC Jack
SP	4822 240 30762	Speaker 2" 0.2W 4Ohm
LCD	4822 130 91514	LCD Display

Note : Only those parts mentioned in the list are normal service parts.

ELECTRIACL PARTSLIST

	©
0R00	4822 051 20008
1R00	4822 051 20108
1R10	4822 051 20118
1R20	4822 051 20128
1R30	4822 051 20138
1R50	4822 051 20158
1R60	4822 051 20168
1R80	4822 051 20188
2R00	4822 051 20208
2R20	4822 051 20228
2R40	4822 051 20248
2R70	4822 051 20278
3R00	4822 051 20308
3R30	4822 051 20338
3R60	4822 051 20368
3R90	4822 051 20398
4R30	4822 051 20438
4R70	4822 051 20478
5R10	4822 051 20518
5R60	4822 051 20568
6R20	4822 051 20628
6R80	4822 051 20688
7R50	4822 051 20758
8R20	4822 051 20828
9R10	4822 051 20918
10R00	4822 051 20109
11R00	4822 051 20119
12R00	4822 051 20129
13R00	4822 051 20139
15R00	4822 051 20159
16R00	4822 051 20169
18R00	4822 051 20189
20R00	4822 051 20209
22R00	4822 051 20229
24R00	4822 051 20249
27R00	4822 051 20279
30R00	4822 051 20309
33R00	4822 051 20339
36R00	4822 051 20369
39R00	4822 051 20399
43R00	4822 051 20439
47R00	4822 051 20479
51R00	4822 051 20519
56R00	4822 051 20569
62R00	4822 051 20629

	©
68R00	4822 051 20689
75R00	4822 051 20759
82R00	4822 051 20829
91R00	4822 051 20919
100R00	4822 051 20101
110R00	4822 051 20111
120R00	4822 051 20121
130R00	4822 051 20131
150R00	4822 051 20151
160R00	4822 051 20161
180R00	4822 051 20181
200R00	4822 051 20201
220R00	4822 051 20221
240R00	4822 051 20241
270R00	4822 051 20271
300R00	4822 051 20301
330R00	4822 051 20331
360R00	4822 051 20361
390R00	4822 051 20391
430R00	4822 051 20431
470R00	4822 051 20471
510R00	4822 051 20511
560R00	4822 051 20561
620R00	4822 051 20621
680R00	4822 051 20681
750R00	4822 051 20751
820R00	4822 051 20821
910R00	4822 051 20911
1K00	4822 051 20102
1K10	4822 051 20112
1K20	4822 051 20122
1K30	4822 051 20132
1K50	4822 051 20152
1K60	4822 051 20162
1K80	4822 051 20182
2K00	4822 051 20202
2K20	4822 051 20222
2K40	4822 051 20242
2K70	4822 051 20272
3K00	4822 051 20302
3K30	4822 051 20332
3K60	4822 051 20362
3K90	4822 051 20392
4K30	4822 051 20432
4K70	4822 051 20472

	©
5K10	4822 051 20512
5K60	4822 051 20562
6K20	4822 051 20622
6K80	4822 051 20682
7K50	4822 051 20752
8K20	4822 051 20822
9K10	4822 051 20912
10K00	4822 051 20103
11K00	4822 051 20113
12K00	4822 051 20123
13K00	4822 051 20133
15K00	4822 051 20153
16K00	4822 051 20163
18K00	4822 051 20183
20K00	4822 051 20203
22K00	4822 051 20223
24K00	4822 051 20243
27K00	4822 051 20273
30K00	4822 051 20303
33K00	4822 051 20333
36K00	4822 051 20363
39K00	4822 051 20393
43K00	4822 051 20433
47K00	4822 051 20473
51K00	4822 051 20513
56K00	4822 051 20563
62K00	4822 051 20623
68K00	4822 051 20683
75K00	4822 051 20753
82K00	4822 051 20823
91K00	4822 051 20913
100K00	4822 051 20104
110K00	4822 051 20114
120K00	4822 051 20124
130K00	4822 051 20134
150K00	4822 051 20154
160K00	4822 051 20164
180K00	4822 051 20184
200K00	4822 051 20204
220K00	4822 051 20224
240K00	4822 051 20244
270K00	4822 051 20274
300K00	4822 051 20304
330K00	4822 051 20334
360K00	4822 051 20364

	©
390K00	4822 051 20394
430K00	4822 051 20434
470K00	4822 051 20474
510K00	4822 051 20514
560K00	4822 051 20564
620K00	4822 051 20624
680K00	4822 051 20684
750K00	4822 051 20754
820K00	4822 051 20824
910K00	4822 051 20914
1M00	4822 051 20105
1M10	4822 051 20115
1M20	4822 051 20125
1M30	4822 051 20135
1M50	4822 051 20155
1M60	4822 051 20165
1M80	4822 051 20185
2M00	4822 051 20205
2M20	4822 051 20225
2M40	4822 051 20245
2M70	4822 051 20275
3M00	4822 051 20305
3M30	4822 051 20335
3M60	4822 051 20365
3M90	4822 051 20395
4M30	4822 051 20435
4M70	4822 051 20475
5M10	4822 051 20515
5M60	4822 051 20565
6M20	4822 051 20625
6M80	4822 051 20685
7M50	4822 051 20755
8M20	4822 051 20825
9M10	4822 051 20915
10M00	4822 051 20106

	©
1p	5322 122 32447
1.5p	5322 126 13135
2.2p	5322 122 33063
2.7p	5322 122 31873
3.3p	5322 122 32286
3.9p	5322 122 31944
4.7p	5322 122 32287
5.6p	5322 122 32967
6.8p	5322 122 32269
8.2p	5322 122 33244
10p	5322 122 32448
12p	4822 122 32139
15p	4822 122 32481
18p	5322 122 32965
22p	5322 122 32658
27p	5322 122 31946
33p	5322 122 32659
39p	5322 122 32966
47p	5322 122 32452
56p	5322 122 32661
68p	4822 122 33514
82p	4822 122 33515
100p	5322 122 32531
120p	5322 122 33861
150p	5322 122 33538
180p	4822 126 10326
220p	5322 126 10794
270p	4822 126 13452
330p	4822 122 33805
390p	4822 126 10702
470p	5322 122 34099
560p	4822 122 33173
680p	4822 122 32535
820p	4822 122 33806
1n	5322 122 34123
1.5n	5322 122 31865
2.2n	4822 122 33175
3.3n	4822 122 33891
4.7n	4822 126 10223
6.8n	5322 122 31866
10n	4822 122 33177
15n	4822 122 33128
22n	5322 122 32654